Kodak

i780 Scanner

Product Information Notebook

January 2008

PRODUCT OVERVIEW

The *Kodak* i780 Scanner is designed to handle mission critical, production applications. It's loaded with features that are optimized for production forms processing and data extraction environments. This scanner offers exceptional speed, price and performance.

The i780 Scanner runs at 130 pages per minute whether you are scanning at 200 or 300 dpi and it delivers incredible image quality with super-fast image processing technologies. Yet, the auto feeder is sensitive enough to handle fragile and lightweight paper without damage. The *Kodak* i780 Scanner raises the bar and operates at the same rated speed, even with advanced image processing features enabled, including our new content-based auto orientation/auto rotation. Simply put, there's nothing but performance and precision under the hood of the i780 Scanner.

Features at a Glance

- **TWAIN Datasource** — features an easy-to-use TWAIN Datasource GUI that allows users to save and select from several pre-configured scanner settings (called Setting Shortcuts). The programmatic interface remains the same as our earlier TWAIN Datasource so support of third party scanning applications will continue to be robust.
- **Lockable paper-feeding guides** — for better control of the printing location.
- **Enhanced Printer** — includes a factory-installed, pre-configured front printer. The printer operates at full scanner speed and can add a date, time, document sequential counter, and custom messages.
- **Five Output options** — meet essentially every application need. Choose, color, black and white, grayscale, simultaneous black and white and grayscale, or simultaneous black and white and color.
- **Outstanding Document Feeding** — Kodak's renowned feeder technology is designed into the scanner.
- **Exclusive SurePath Paper Handling** — the i780 Scanner is virtually jam-free and damage-free because it's designed for smooth paper transport from input to output.
- **Resolutions** — black and white: 200/240/300/400; color: 100/150/200/240/300; grayscale: 100/150/200/240/300.
- **Independent settings for ultrasonic multifeed sensors** — the three ultrasonic document sensors can be independently enabled/disabled to further customize and increase productivity.
- ***Kodak* Manual Feeder** — the *Kodak* Manual Feeder provides a flat work surface to aid in manual feeding.
- **Multiple automatic document feeder elevator settings** — the elevator can now be set to four settings — 500-, 250-, 100-sheets and manual — for added versatility and productivity.

- **34 in. maximum document length** — the maximum document length that can be fed has been increased to 34 inches for all resolutions and with all cropping methods in black and white and color/grayscale.
- **Dual xenon lamps** — two long-lasting, mercury-free Xenon lamps per side give you maximum illumination to help eliminate shadows from wrinkled documents.
- **Auto Color Detection** — allows your scanner to automatically scan in color or grayscale when it senses that the color content of specific documents within a batch is above a set threshold. Based on the threshold you set, *your scanner* determines when to scan in color or grayscale.
- **Perfect Page scanning with iThresholding** — Perfect Page scanning with iThresholding is essential when you are scanning mixed batches of documents of varied contrast in background and/or text.
- **Orthogonal rotation** — allows you to feed documents in landscape orientation (faster throughput), but display the scanned images in portrait orientation (convenient viewing).
- **Auto Orientation/Auto Rotation** — this feature automatically analyzes each document to determine how it was fed into the scanner and will rotate the image to the proper orientation.
- **Toggle patch** — enable color or grayscale on-the-fly processing with the Toggle patch.
- **Attractive, compact design, quiet** — big scanning volume, small size. The desktop design means it fits just about anywhere.
- **Section 508-compliant** — offers easy access to all controls, user replaceable parts and the entire transport.
- **Advanced image processing** — offers incredibly clear scans in color, black and white, and grayscale.
- **Tricolor Plus CCD Sensor** — exceptional image quality and readability are automatic.

PRODUCT DESCRIPTION

What's in the box?

- *Kodak* i780 Scanner
- Output tray
- Short document tray
- Ink cartridge and blotter strips
- Tires and Pre-separation pads
- Cleaning supplies
- FireWire (IEEE-1394) package (card and cable)
- Calibration targets
- Exit deflector
- Power cord bundle
- Warranty/Registration box
  - Paper Path cleaner
  - User's Guide (printed English version)
  - Installation and application CDs
  - Registration card
  - Brightness and Contrast Control CD
  - Brightness and Contrast Control Reference Guide
  - Quick Tips Guide (printed 14-language pack)
  - Installation Setup Guide (printed 14-language pack)
  - Read Me Now sheet (14-language)

System requirements

- Intel Pentium IV, 2.5 GHz processor, 512 MB RAM
- PCI slot
- Windows 2000 (Service Pack 4), Windows XP (Service Pack 2) and Windows Vista (32-bit)
- Monitor and mouse

Physical dimensions

Height: 40.6 cm / 16 in.

Width: 60.9 cm / 24 in.

Length: 76.2 cm / 30 in.

Weight: 38.6 kg / 85 lbs

Environmental conditions

Operating Temperature:	10°C to 35°C (50° to 95°F)
Humidity:	10 to 85%
Environmental Factors:	Energy Star qualified scanners
Heat Load:	2500 BTU/hr. max
Acoustic Noise:	Operating: 61 dB(A)
	Standby: 42 dB(A)

Speeds

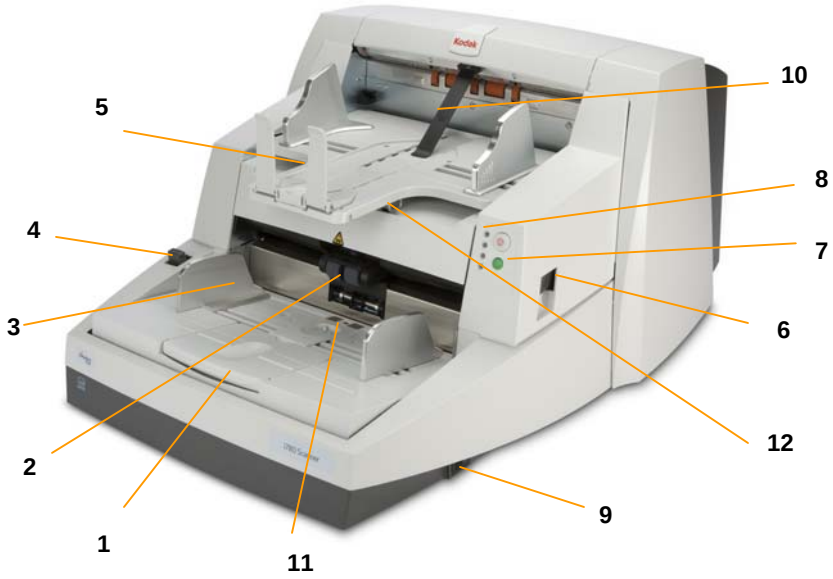
Scanning speeds will vary depending on a number of conditions, including software application, size of paper scanned, selected resolution, and PC speed. The table below shows typical speeds in pages per minute (ppm) for A4 or letter-sized paper scanned.

Resolution		Landscape ppm	Portrait ppm
Color/Gray	Black and White		
100	-	130	105
150	-	130	105
200	200	130	105
240	240	130	105
300	300	130	105
	400	<130	<105

NOTE: Throughput speeds may vary depending on driver, application software, operating system and PC.

Scanner components

Front view



1 **Elevator tray extender** — open the elevator tray extender to accommodate long documents.

2 **Feed module** — provides smooth document feeding of various sizes, thicknesses and textures.

3 **Elevator tray side guides** — slide the guides in or out to accommodate the document size you want to scan. Side guides can be left-, center- and right-adjusted to accommodate documents of various widths. Side guides also lock in place to hold the print location.

4 **Gap Release lever** — allows you to manually adjust the space between the feed module and separation roller for documents that require special handling.

5 **Output tray and End stop** — collects the scanned documents. The output tray width and end stop length can be adjusted.

Short Document tray (not shown in illustration) — for best stacking performance, the short document tray can be used when scanning documents from 6.4 x 6.4 in. (164 mm x 164 mm) to 2.5 x 2.5 (64 mm x 64 mm)

6 **POD release latch** — push up the POD release latch when you need to access the inside of the scanner.

7 **Stop/Pause and Start/Resume buttons**:

- **Stop/Pause** button: (white with red triangle) press to temporarily stop scanning.
- **Start/Resume** button: (green) press to start scanning.

8 LEDs — illuminates or flashes from top to bottom as follows:

Illuminates when the power is turned on and the scanner is idle. This indicator will flash if the scanner is in “sleep” or lamp saver mode.

Illuminates when the scanner is enabled and/or scanning, and flashes when the scanner is powering up.

Flashes when a document has jammed in the transport or when a multi-feed has been detected. Illuminates when a user-correctable error has been detected.

Illuminates when you need to call Service.

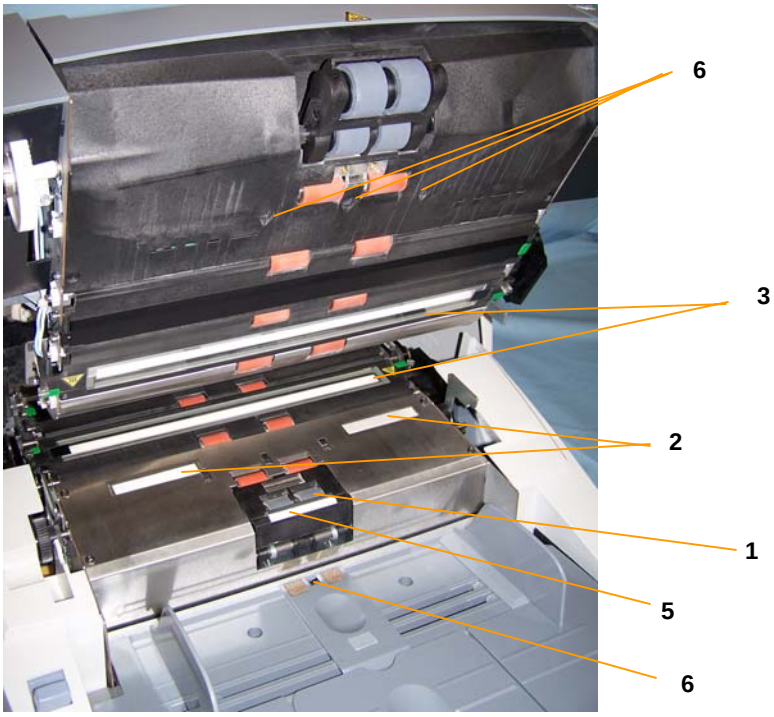
9 Power switch — press the power switch on (I) or off (O) as required.

10 Exit deflector (optional) — aids in document stacking.

11 Paper Present Sensor — detects the presence of documents in the elevator tray.

12 Height Adjustment Wire — located underneath the output tray (not shown in photo), this wire can be pulled out to raise the front of the output tray.

Inside view



1 **Separation roller** — provides smooth document feeding of various sizes and textures one document at a time.

2 **Ink blotter strips** — collects residue from the Enhanced Printer.

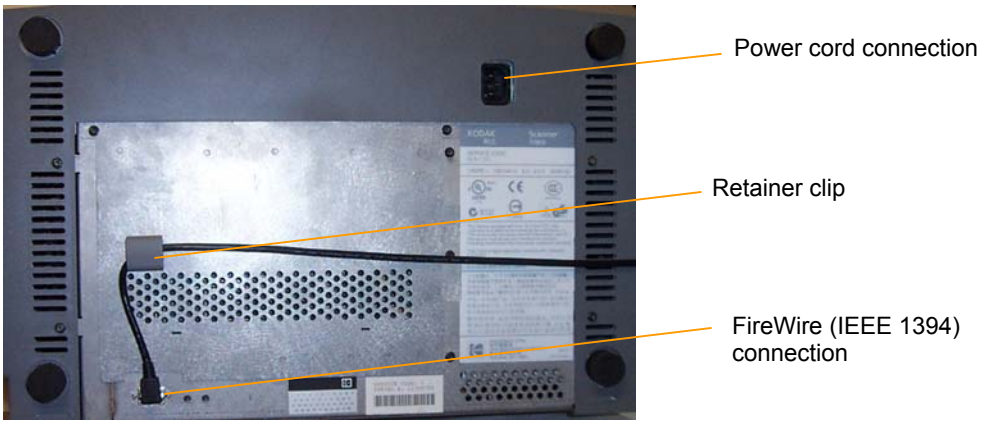
3 **Imaging guides** — the scanner has an upper and lower imaging guide. It is important to keep the imaging guides clean to obtain optimum image quality.

4 **Rollers** — drive rollers and NFR rollers transport the documents through the paper path.

5 **Pre-separation pad** — provides smooth document feeding of various sizes and textures one document at a time.

6 **Sensors** — the scanner has 3 (ultrasonic) multi-feed detection sensors, 1 (optical) paper path sensor and 1 (optical) paper present sensor. These sensors detect the presence of documents in the elevator tray and documents in the paper path during feeding and imaging.

Back view



Power Cord Connection — provides power to the scanner. The scanner is packed with six power cords. Choose the power cord appropriate for your location and connect it accordingly. Connect the power cord first to the scanner, then to the wall outlet.

FireWire (IEEE-1394) Connection — before connecting the FireWire cable, be sure that power to the scanner is off.

Retainer clip — after connection, place the cable in the retainer clip located above the connector.

PRODUCT FEATURES

While the i780 Scanner looks similar to the i600 Series Scanners, it incorporate the latest innovative design, technology, features as well as exceptional price/performance that customers demand.

Under the hood, a new architecture allows customers to scan their documents with advanced image processing features enabled in color, black and white, and grayscale and all at the same speed. Kodak's first-in-class feeding technology allows easy capture of mixed batches of business documents, photos, graphics, and tear sheets for processing, archiving and sharing. The i780 Scanner has a recommended daily volume up to 130,000 pages per day.

SCANNER FEATURES

Locking side guides

It's as easy to moving a switch to lock the side guides for better control of the printing location.

Easy to use, meets ergonomic design standards

We've made the i780 Scanner easy to operate and tough to beat:

- 500-sheet elevator tray for easy paper feeding which can be pre-set to accommodate different batch sizes.
- Easy-to-reach input and output trays making it easy to load and unload documents.
- Easy access to the complete paper path allows you to clear the paper path quickly and perform efficient scanner maintenance.
- Easy-open design allows you to open the cover with a touch of the release lever.
- Easy-to-change rollers and feed module.

Kodak SurePath Paper Handling

Kodak SurePath Paper Handling means you have the confidence that documents will "fly" through the scanner under control. Kodak's Document Imaging scientists and engineers analyzed years of production scanner feedback from the Kodak service organization's tracking system and took the best paper transport system in the industry and made it better. This includes new feeder geometry, redesigned feeding mechanisms, an improved drive train and a host of other enhancements that maximize throughput and reduce noise.

Paper Handling and Feeding

The input tray and automatic document feeder of the i780 Scanner is designed to stack and feed up to 500 sheets of 75 g/m^2 (20 lb.) bond paper reliably across the specified range of document sizes.

The feeder accepts a wide variety of paper weight, with no operator intervention necessary after the initial loading. While the automatic document feeder works best with similar size documents, it also handles the feeding of mixed document sets (batches) consisting of varying paper weight and sizes in a reliable manner.

The feeder includes a gap release for the operator to easily bypass the separation feature when feeding documents such as folders or envelopes.

Auto Orientation/Auto Rotation

For documents that contain mostly text, the scanner will analyze each document to determine how it was fed and will rotate the image to the proper orientation at rated speed.

Ultrasonic Multifeed Detection

A reliable ultrasonic multi-feed detection system has been integrated into the i780 Scanner. Three detection zones allow for greater feeding flexibility and can be independently enabled/disabled to further customize and increase productivity of a scanning application. (left-, center-, and right-edge) while still benefiting from multi-feed detection.

Sensors may be enabled or disabled, depending on your application. For example, if you know that the right side of the document has a Post It™ on it, you can disable the right sensor.

Multi-feed detection is enabled through the host software. Sensitivity levels (high, medium and low) can be set to control how aggressively the scanner will work to determine if more than one document is fed into the transport. Multi-feeds are triggered by detecting air gaps between documents. This allows multi-feed detection to be used with applications containing documents with mixed thicknesses.

- **High sensitivity** is the most aggressive setting and good to use if all documents are similar in thickness of no greater than 75 g/m^2 (20 lb.) bond paper.
- **Medium sensitivity** is the default and good to use if your application has varying document thicknesses or labels attached to the documents.
- **Low sensitivity** is the least aggressive setting and is less likely to detect labels, poor quality or wrinkled documents as multi-fed documents.

The operator can select either option when the system determines that multiple documents have been fed through the scanner.

- **Beep and Continue**: beeps when a multifeed has been detected and will continue scanning.
- **Beep and Stop**: beeps when a multifeed has been detected and stops scanning. When this occurs, the scanner will need to be re-enabled to resume scanning.
- **Beep and Pause**: beeps when a multifeed has been detected and pauses scanning. When this occurs, the operator can quickly resume scanning by pressing the start button on the scanner.

Diagnostic Software (for use by Kodak Service Personnel)

Robust diagnostic software for the i780 Scanner provides maximum uptime and optimum performance for the customer. Comprehensive hardware analysis and problem determination in the software allows a high success rate in resolving the root cause of problems via remote analysis. When on-site service is required, the diagnostic analysis allows the Field Engineer to better understand the nature of the problem and be prepared with the appropriate service parts before going on site.

Features of diagnostics include the ability to provide error logs that can be e-mailed or faxed to the Response Center at Kodak for further analysis.

Optics

The design heritage of the M-type Kodak lens used in the i780 Scanner comes from a high-resolution production scanner developed for complex character scanning. The lens also incorporates an infrared filter with its lead-free multiple elements. This reduces light loss and eliminates alignment of the infrared filter to the lens. The infrared filter reduces warm-up time by providing a more “color stable” light output to the CCD when the lamps have just been turned on, as well as during operation.

Unlike competitive scanners, which use off-the-shelf lenses, the additional glass elements in the i780 Scanner’s lens provide a greater depth of focus to keep thin-to-thick and light-to-heavy documents in focus. In addition, the scanner’s lens keeps outer edges in focus so they have virtually the same clarity as the center of the document.

Tri-Color Plus Array

The Tri-Color Plus Array is built on a rich foundation of Kodak CCD technology. Produced by the Kodak Image Sensor Solution division (ISS) via specifications created by Kodak’s Document Imaging Scanner Engineering and Advanced Development teams, the Tri-Color Plus Array is the fastest, most accurate and advanced chip available today. This CCD is exclusive to Document Imaging.

One array contains the red, green, blue and luminance (grayscale) sensors. This provides cleaner image transmission (focusing the lens on one array), and since the grayscale image is created in conjunction with the color image, you have the ability to use grayscale image elements in the color image processing chain for a sharper image and to maximize image purity in dark regions of the image.

Enhanced Printer

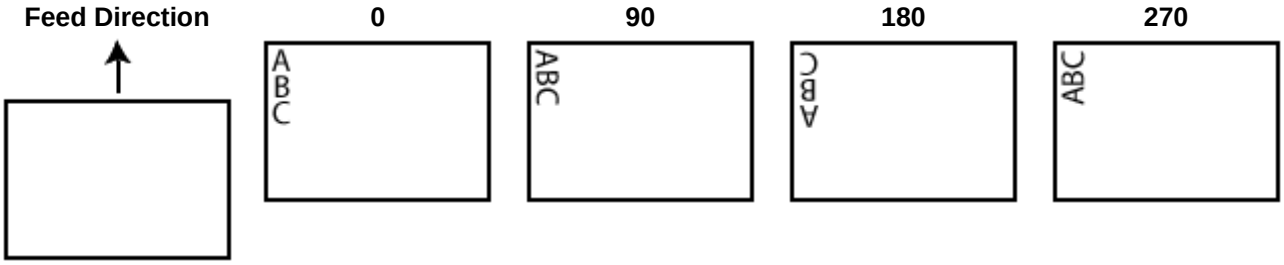
The Enhanced Printer provides a vertical print capability and supports alphanumeric characters, date, time, document count and custom messages. The Enhanced Printer is unique in that the document print string can be configured to include both static information (i.e., information that stays the same for each document, such as scan station or operator) and dynamic information (i.e., information that may change for each page scanned, such as time or sequential document number). All printer controls and functions are accessible via the ISIS and TWAIN Drivers.

The Enhanced Printer cartridge is a standard HP print head and affords the customer an inexpensive and effective way to apply information to the scanned document.

See the User's Guide for details on the printing functionality.

Printer specifications

Maximum lines: 1
Print locations (horizontal): 8 front manually set
Print locations (vertical): set by the scanning application
Print orientation: 0, 90, 180 and 270



Font size: 2 selectable, **Normal** and **Bold**.
Number of characters in print string: 40

Ink cartridge: HP-C6602A Black (CAT No. 818 3386); HP-C6602R, Red (CAT No. 159 6832) or compatible. Other print cartridges are also available from your office supply vendor: HP-C6602G (Green) and HP-C6602B (Blue). For more information regarding supplies and consumables, refer to the *Supplies and Consumables* catalog, A-61403.

Print side: front (pre-scan).

Minimum printing distance from document edge: 0.89 cm (0.35 in.).

Static fields available: user-specified messages via the scanning application.

Dynamic fields available: up to 9-digit sequential document number, date, 4-digit time.

Languages supported: Any phonetic language (for example, Danish, Dutch, English, Finnish, French, German, Italian, Norwegian, Portuguese, Spanish, Swedish, Half-width Katakana)

Kodak Capture Software and bundled ISIS Driver and TWAIN Datasource

The ISIS Driver and TWAIN Datasource are shipped with the scanner and can be installed from the CD. The scanner host system is the primary means of controlling the scanner. The TWAIN Datasource and ISIS Driver-compliant enabling software from Pixel Translations supports Microsoft Windows 2000 Professional, Windows Me, Windows 98SE, Windows XP (Professional/Home).

The newly designed TWAIN Datasource graphical user interface allows users to save and select from several pre-configured scanner settings (called Setting Shortcuts). The programmatic interface remains the same as our earlier TWAIN Datasource so support of third party scanning applications will continue to be robust.

500-sheet Elevator Tray

End user feedback in the mid-volume segment indicated a strong desire for a higher volume, yet reliable feeder. The i780 Scanner offers elevator-feed or continuous-feed, when the elevator is in the up-position. In addition, the elevator can now be set to **four** settings for added versatility and productivity: 500-, 250-, 100-sheets and manual. The Start/Resume button on the control panel is also active; therefore, it can reverse direction if it is pressed while the elevator is descending, saving valuable time between batches.

Flexible Feeder and Output Tray

Mid-volume operations typically include multiple applications with variable feeding requirements. Traditional center-line-only feeders do not meet the needs of these operations. Voice of the Customer feedback strongly indicated a desire for left-edge feeding. The side guides allow for left-edge feeding, right-edge feeding, center-line feeding or an infinite number of variable feeder widths not constrained to a center line (the side guides may be moved together or independently and may be reset to auto center-line by simply pushing the side guides to the center). In addition, use the short document tray when you are feeding small documents.

Customer Maintenance

The i780 Scanner was designed with minimal operator maintenance in mind. The scanners use long-lasting transport rollers and lamps. The only required scanner consumables are the feed module, imaging guides, ink cartridges and the separation roller, which are easily replaced by the operator.

The *Kodak* Feeder Consumables Kit has an estimated life of 1,750,000 pages of non-abrasive, A4 or letter-sized, 75 g/m^2or 20 lb. bond paper. For more information regarding consumables and supplies, refer to the *Supplies and Consumables* catalog, A-61403.

Integration

For the most up-to-date listing of completed integrations, go to the Kodak web site at **www.kodak.com/go/ScannerISVs**.

IEEE-1394 (FireWire) Interface

Reduce setup and installation time with plug-and-play simplicity. The IEEE-1394 (FireWire) card and cable are shipped with the scanner.

Accessories

Kodak Feeder Kit for Ultra-Lightweight Paper — CAT No. 896 5279

The *Kodak* Feeder Kit for Ultra-Lightweight Paper allows you to feed lightweight paper from a paper weight range of 25 g/m^2 to 75 g/m^2 (7 to 20 lb.). This accessory includes a feed module and separation roller that are specially designed to feed lightweight paper through the scanner transport.

Kodak White Background Accessory — CAT No. 894 9000

If you are scanning translucent documents, this accessory will reduce black background bleed-through while scanning thus producing whiter images. The White Background Accessory comes with two white background strips that easily replace the two black background strips in the scanner.

Kodak Manual Feeder — CAT No. 163 4948

The *Kodak* Manual Feeder is available for manual feeding of documents. This feeder provides a flat surface for easy feeding.

IMAGE PROCESSING FEATURES

Advanced image processing capabilities have long been the hallmark of document image scanners. The i780 Scanner advances image processing to a new level, taking all the best and adding more. Full-speed image processing in color, grayscale and black and white arenas in a scanner of this capability offers an unparalleled opportunity for today's demanding document management systems. The table below outlines the image processing features available for color/grayscale and black and white images. Remember that the i780 Scanner processes images at full rated speed.

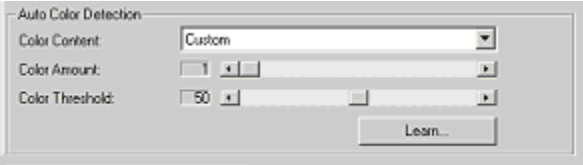
Feature	Color	Black and White	Grayscale
Adaptive Threshold Processing		X	
Auto Color Detection	X		X
Brightness and Contrast Control	X		
Four cropping options	X	X	X
Deskew	X	X	X
Electronic Color Dropout		X	
Fixed Thresholding		X	
Halftone Removal		X	
Polarity		X	
Noise Filter		X	
Orthogonal Rotation	X	X	X
Auto Orientation/Auto Rotation	X	X	X
Perfect Page with iThresholding		X	

Adaptive Threshold Processing

After skew correction and auto-cropping algorithms have been applied to the scanned image, the grayscale image is processed using Adaptive Threshold Processor (ATP) which is built into the scanner software. ATP turns a grayscale image into a black and white image. The ATP algorithms utilize a two-dimensional symmetrical array of surrounding pixels in order to accurately determine the value of each pixel. Other approaches use only a few surrounding pixels to make the determination.

Auto Color Detection

Based on the color content of a document, this new feature will make it easier for customers to capture color/grayscale only when they require it, reducing document prep time, storage requirements and eliminating the need for patch sheets.



If you choose to use this option, the scanner will be automatically triggered to change from the current image stream (black and white) to the alternative image stream (color/grayscale) based on the values set in Color Content, Color Amount and Color Threshold. This is done on a document-by-document basis by scanning each document and determining the color content.

NOTES:

- Toggle Patch will still be supported.
- Not compatible with all document capture software products; consult with your software provider.

Brightness and Contrast Control

Brightness and Contrast Control provides customers with the ability to create their own custom color tables to meet any unique scanning need. Once a color table has been created, it can be downloaded to the scanner and used in production. The color tables to be used for front and back images are set independently. When scanning, only one color table can be applied to each image (front or back). The same color table can be used for both the front and the back, or use one color table for the front and one color table for the back. These tables can be easily managed by capture applications.

Simultaneous Output of Color/Grayscale and Black and White Images

The i780 Scanner can output color, grayscale, or black and white images; grayscale and black and white images; or color and black and white images without further processing required by the host (some color scanners create this type of output by having the color image converted at the host). The output from the scanner can be in five different formats and at the same rated speed.

Tri-Color Plus Scanning Array

Kodak's exclusive scanning array the Tri-Color Plus Array, provides, in one pass, true color, grayscale, and original black and white images.

The Tri-Color Plus Array was designed to be the fastest, most accurate, highest quality and efficient production image capture device in the world. It enables black and white applications to take advantage of the scanner's unparalleled productivity and evolve to true color production scanning when ready.

Toggle Patch

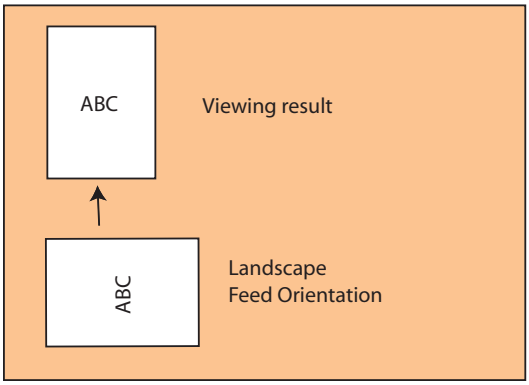
The Toggle Patch triggers the scanner to switch from the current scanning mode to the alternative mode (i.e., black and white to color/grayscale or color/grayscale to black and white).

When you scan using a Toggle Patch (shown at right), color on-the-fly processing is enabled. With color on-the-fly, scanning automatically switches between scanning modes (e.g., black and white to color/grayscale, then back to black and white) whenever a Toggle patch is read by the scanner.

NOTE: An information packet (A-61599) is available for Kodak Innovation Series Scanners. This describes the use of patch codes and patch sheets in a document scanning work flow.

Orthogonal 90° Rotation

This feature allows the customer to feed documents in landscape orientation, thus obtaining the best throughput speed, but display the images in portrait orientation, which provides a more convenient viewing result.



Cropping — including zone processing

Cropping allows you to capture a portion of the document being scanned. Cropping parameters may be separately defined for the front and rear sides and for the color and black and white images and are operator-selectable via the host.

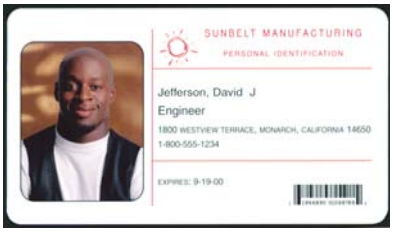
Automatic: (used for batches of *mixed-size* documents) — dynamically adjusts the cropping window for different document sizes. Based on the edges of the image detected, the i780 Scanner dynamically detects the boundaries of the document and only delivers the actual document to the operator. Auto-cropping for a page accurately occurs anywhere within the imaging window of the transport.

Fixed: (used for batches of *same-size* documents) — allows you to define the area or zone to be imaged.

Aggressive: (used for batches of *mixed-size* documents) — this cropping method eliminates any residual black border on any image edge.

Relative to Document or zone processing (used for batches of *same-size* documents) — some applications have a requirement to store part of an image in color and the rest of the image in black and white format (this saves storage space by not storing the entire image in color). Zone processing is a fixed crop window (the zone) that allows the operator to select via the host application an area on the document to be delivered in either color or black and white format (a separate window for both black and white and color may be defined). Different parameters may be selected for both the front and rear of the image.

Zone processing can also be applied to text or black and white areas on a document. For example, a certain area might contain a bar code that needs to be read as a high-resolution black and white image. The i780 Scanner can pick up the area with the bar code as a black and white image and deliver the rest of the image in full color (high or low resolution depending upon the needs of the application). This reduces storage space requirements, network traffic and still delivers the functionality required for an effective image processing system.



Original

Black and White Cropping

Relative Cropping

Deskew — Multi-bit (Color/Grayscale/Black and White)

The skew detection and correction subsystem performs accurate deskew on the 8-bit image in each channel (RGB and grayscale) in the i780 Scanner. The front, rear, and simultaneous outputs are deskewed independently providing maximum accurate deskew, all done at full machine speed. It is important to note that deskew is based on the document edges not the content within the document. This provides an assurance that document information will not be lost.

The new algorithm is also less sensitive to background noise and provides for deskew at an angle up to 45 degrees with an accuracy of ± 0.3 degrees. (Since it takes longer to deskew a document with a higher degree of skew, the feeder is designed to throttle while the image is deskewed.)

Electronic Color Dropout

Electronic color dropout is used to eliminate a form's color background so that a document management system may automatically (through OCR or ICR technology) read pertinent data without interference from the lines and boxes of the form. The i780 Scanner can drop out either red, green or blue. The dropout color selection (R, G, B) is changeable at the host. The scanner does more than just drop out the color. The selected dropout color is fine-tuned for optimal image quality through a simple operator setup procedure.

The i780 Scanner uses electronic color dropout, meaning there is no lamp change or filter change required to change the dropout color.

The i780 Scanner can be configured to output black and white images with the selected color dropped out, but also output the full-color image.

Fixed Thresholding

Fixed thresholding is used for black and white and other high-contrast documents. A single level is set to determine the black and white transition. This threshold is programmable over the entire density range. When Contrast is set to zero, Threshold is fixed. When Contrast is set to 100, Threshold is fully dynamic. Usually a setting in between these numbers produces the best results.

Fixed thresholding is used where the desired output is consistent vs. variable as with ATP. Testing should be performed to find the best fixed threshold level in these types of applications.

Fixed thresholding may not be used when adaptive thresholding or dithering is selected.

Perfect Page scanning — for Black and White, Grayscale and Color Images

Perfect Page scanning means that within the scanner, images are correctly deskewed and straightened. Black borders have been accurately reduced, without clipping corners. Photographs look like photographs. Exposure and contrast have been optimized to bring out details. Lines and fonts appear with smooth edges. All this, in color or black and white, without operator intervention or post-processing. Only the combination of Kodak optics and image processing bring you Perfect Page scanning.

Perfect Page scanning with iThresholding

Perfect Page scanning with iThresholding delivers high-quality black and white images from a large range of both poor- and high-contrast documents and reduces the need to pre-sort, rescan, and perform post-image processing. You get better image and text legibility, smoother lines, minimal to no artifacts, and fewer shaded areas with minimal or no user intervention.

Scan mixed batches of documents of varied contrast in background and/or text with the iThresholding features and the scanner dynamically evaluates each document in the batch to determine the optimal threshold value to produce the highest quality image. Brightness is automatically adjusted for each individual document for highlighting, low contrast, and lightweight paper.

Perfect Page is a combination of built-in powerful imaging technologies. Every scan is optimized as it is captured. Perfect Page scanning also shifts gears automatically to handle a wide range of documents.

Polarity

Used to reverse the pixel values of a black and white image (i.e., make the white pixels black and black pixels white). Polarity may be used when a reverse document is scanned (common in old government records systems) or documents that do not appear readable in Normal mode may become legible using polarity.

Image Output

The scanner outputs either compressed or uncompressed raw data to your application. The bundled drivers output JPEG and TIFF image formats. Use your application to select an image format in which to save the image data.

APPLICATIONS

The *Kodak* i780 Scanner is targeted at departments or organizations that need to automatically extract data from a wide variety of structured and unstructured forms.

Structured Forms:

- New customer applications
- Customer orders and billings
- Customer update or responses forms
- Licensing
- Vital records
- HR / new employee records
- Customer service
- Surveys
- Academic or professional testing
- Lab tests / results
- Mortgage and loans
- Credit applications
- Patient records
- Medicare, Medicaid
- Tax
- Census

Unstructured Forms:

- Supplier invoices
- Accounting records
- Contracts
- Customer correspondence
- Legal documents
- Insurance documents
- EOB's
- Transportation documents
- Purchase orders
- Incoming mail

VALUE PROPOSITION

End User

The *Kodak* i780 Scanner is a high-speed, production level scanner optimized for the needs of mission-critical forms processing operations. It is the only scanner in it's price / performance class that operates at full rated speeds with advanced image processing features that enable data extraction:

- 50% to 80% faster than competitive models (BB&H Spectrum XF and Fujitsu 5900C) running at 300dpi with auto-crop and deskew enabled.
- Only scanner in class that performs content-based, automatic image orientation at rated speed.

Reseller

Kodak continues to lead the worldwide high-speed, production scanner class with proven technology and service options that you can confidently deliver to your highest value clients, while maintaining your hardware, service and services margins.

PRODUCT POSITIONING

For:	Organizations that need to do forms processing in a mission-critical, production environment.
Who need:	Fast, accurate, reliable image and data capture.
Our product is a:	High-speed, high-volume document scanner.
That provides:	Fastest capture technology optimized for OCR and ICR based data extraction.
Unlike:	BB&H Spectrum Series and Fujitsu 5900C.
Our product:	Maintains rated speeds when using image processing features required for data extraction (deskew, auto-crop, image clean-up and auto orientation/auto rotation) at resolutions required for forms processing (300 dpi).
Proof points:	**Speed and Throughput** — fast 130 pages per minute capture in color, grayscale or black and white at 200 and 300 dots per inch of resolution. Throughput is maintained even when advanced image processing and data extraction oriented features such as auto-page orientation, auto-crop and deskew are enabled. **Perfect Page scanning with iThresholding** — Perfect Page scanning with iThresholding is essential when you are scanning mixed batches of documents of varied contrast in background and/or text. **Auto Orientation/Auto Rotation** — this feature automatically analyzes each document to determine how it was fed into the scanner and will rotate the image to the proper orientation. **Auto Cropping** — dynamically adjusts the cropping window for different document sizes. Based on the edges of the image detected, the i780 Scanner dynamically detects the boundaries of the document and only delivers the actual document to the operator. Auto-cropping for a page accurately occurs anywhere within the imaging window of the transport. **Deskew** — front, rear, and simultaneous outputs are deskewed independently providing maximum accurate deskew, all done at full machine speed **Electronic Color Dropout** — eliminates a form's color background so that a document management system may automatically (through OCR or ICR technology) read pertinent data without interference from the lines and boxes of the form. The i780 Scanner can drop out either red, green or blue. The dropout color selection (R, G, B) is changeable at the host.

From the industry leader in digital innovation and the world leader in imaging, the i780 Scanner truly re-defines the “mid-volume production” document scanner category. Competitive offerings are hard pressed to beat Kodak’s winning combination of price, features, and performance offered with the i780 Scanner.

These scanners are ideal for capturing business documents, graphics, photos, tear sheets, and even long (up to 34 in. standard) or irregularly shaped documents — that may have been considered impossible to capture previously — into a digital workflow for sharing and archiving. The new i780 Scanner will change the way you think about desktop production document scanning.

- Convert file space to working space and meet new peak processing periods imposed by tighter regulatory compliance and other legal mandates, at speeds up to 130 pages per minute.
- Improve customer response time with best-in-class throughput, often versus scanners that claim to have higher rated speed.
- Handle ever-increasing paper volumes within shorter timeframes without 500-sheet feeder, featuring continuous, non-stop document feeding.
- Take on more volume with equivalent or few production staff with the most productive scanner family in the business.

The i780 Scanner offers new, innovative, and highly productive features that distinguish it from other offerings in the market.

- Scanning in color or grayscale is as fast as black and white scanning up to 130 ppm at 300 dpi.
- Auto orientation/auto rotation increases actual throughput by allowing you to scan at the faster landscape orientation, but have the images automatically oriented for proper viewing, without incurring any penalty for additional post-scan processing.
- Simultaneous output of multiple image formats, up to 520 images per minute.
- Perfect Page with iThresholding delivers built-in advanced image processing functions as “standard”, such as a best-in-class auto crop and deskew, relative cropping, automatic color detection, and brightness and contrast control. These features ensure readable business documents by office workers and automated data extraction technology (OCR, ICR, OMR and bar codes) alike.
- World renowned SurePath paper handling that effectively captures practically any document in almost any condition. You can trust your valuable business documents to Kodak.
- Fast, plug-and-play IEEE-1394 (FireWire) interface and Capture Software, which enables 100% of all scanner features, to speed your images on their way.

The i780 Scanner continues to deliver upon our industry reputation as providing reliable, easy to set-up and use scanners that require minimal operation intervention and maintenance whether in the mailroom or scanning department.

COMPETITION

This section compares the *Kodak* i780 Scanner with the major competition in the mid-volume production scanner segment. We hope you find the comparisons useful.

The information that follows was gathered through sell sheet materials supplied (physically or via the Internet) by the manufacturer. Other data has been provided by Kodak Engineering Staff, Value-Added Distributors, and outside consultants. Several categories of information require special explanation for a full understanding of the following competitive profiles.

NOTE: Every effort has been made to verify the features, performance, and pricing information shown on the following pages. As conditions change, however, Kodak cannot accept responsibility for the validity of competitive data.

Scanner Speed

All manufacturers have provided the stated speed(s) of their paper transports (typically using the landscape mode on A4 or letter-sized paper). Be *extremely cautious* using these figures, as very few, if any, scanners can actually function at these speeds due to constraints in paper handling, jams, or restrictions at the computer (SCSI/Video/USB/IEEE-1394) interface.

Kodak scanners perform all functions at rated speed, with no performance penalty for color imaging, Perfect Page processing and our new auto orientation/auto rotation feature. Not all (if any) of the competitive scanners can make this claim.

Capture Resolution/Output Resolution

The basic laws of physics suggest that higher output resolution for a given machine means proportionally slower speed. Additionally, the differences between capture and output resolutions allow the imaging algorithms within the scanner to clean up the image and remove spurious data. Therefore, capture resolution plays an integral part in establishing the overall quality of the image.

Capture resolution is the actual dpi of the image as the scanner captures it. Some scanners can interpolate up to a higher output resolution than the optical or actual capture resolution (i.e., a 300 dpi image can be interpolated up to look like a 600 dpi image). Final image quality is dependent on multiple variables, such as the quality of the lens, light, CCD, and image processing routines.

Paper Thickness

Like transport speed, minimum and maximum paper thickness are normally interesting hypothetical measures. Although necessary parameters to evaluate a scanner's performance, they tell little about the equipment's treatment of a thin or fragile document or what happens to documents when a double-feed is detected, or a paper-clip is accidentally fed into the paper path. In addition, various manufacturers specify their scanner's paper handling capacities differently — some by thickness, some by weight — thus making it difficult to make an apples-to-apples comparison.

Changes in paper thickness from one document to the next and the scanners' ability to handle these changes cannot be measured using these parameters. The paper thickness comparison should be used only as an estimate of the general capabilities of a scanner. The operator is always the best possible evaluator of tolerance to thickness and thickness changes by running standard batches of their documents through the machine. Kodak has a program named SurePath Paper Handling that goes back to the transport engineering philosophy that all pages within the scanner specification will go through the scanner.

Kodak scanners have been tested with a range of documents that represent the broad spectrum of document types found in the most common business applications. Optimal scanner performance is achieved when scanning documents within the recommended document specifications listed below. Scanning documents outside of these specifications may lead to undesirable results in terms of scanner reliability, image quality, and/or consumable life.

Materials:

- Virgin and recycled papers
- Clear protective sleeves meeting the size and thickness requirements in this section

Paper Types: Bond, Laser, Inkjet, Offset

Paper Weights: The elevator tray handles a broad range of paper weights from 45 to 200 g/m^2 (12 to 110 lb.). The *Kodak* Feeder Kit for Ultra Lightweight Paper can handle paper weights from 25 to 75 g/m^2 (7 to 20 lb.).

Minimum Document Size: 6.4 x 6.4 cm (2.5 x 2.5 in.). Documents as small as 5 cm (2 in.) (i.e. business cards) can be center-fed, in portrait orientation one at a time.

Key Selling Points Against Competition

Kodak i780 Scanner -vs.- BB&H Spectrum Scanners

- The list price of the *Kodak* i780 Scanner is 15% less than that of BB&H's top Spectrum model.
- The *Kodak* i780 Scanner offers superb image processing utilizing Kodak's proprietary ***Perfect Page*** image quality algorithm, providing an array of image quality capabilities including:
  - Deskew
  - Cropping
  - Color dropout
  - Dynamic thresholding (iThresholding)
  - Contrast control
  - Blank page detection
  - Auto Orientation / Auto Rotation (AO/AR)
- The *Kodak* i780 Scanner technology for multifeed detection (with ultrasonic technology) can handle mixed batch documents, and will run at rated speed at 200 and 300 dpi. In contrast, the BB&H Spectrum Scanner speed decreases by 25% with black and white, two-sided documents and 74% with color two-sided documents with deskew, auto crop, and AO/AR features turned on at 200 and 300 dpi.
- The *Kodak* i780 Scanner produces dual stream output at rated speed. With a capture software application that supports multiple streams, dual stream is an advantage as it allows a color image to be leveraged in the validation stage of a typical work flow, then deleted, while the black and white image, a smaller file, can be archived – without an additional document scan required. The BB&H Spectrum Scanners do not support dual stream output.
- *Kodak* Scanners are backed by factory-trained employees providing world-class service and support for all hardware and software.
- The *Kodak* i780 Scanner can capture longer documents (up to 34 inches / 864 mm) at rated speed. In contrast, the BB&H Spectrum Scanners cannot handle longer documents, supporting only documents up to 17 inches / 432 mm.

Kodak i780 Scanner -vs.- Canon imageFORMULA DR 9080C

- The *Kodak* i780 Scanner is a robust scanner with CCD technology, able to handle a production level duty cycle, and performing 36% faster than the Canon imageFORMULA DR 9080C Scanner. The Canon scanner is limited by its CIS technology, which results in poor image quality and large file sizes.
- The *Kodak* i780 Scanner offers superb image processing, utilizing Kodak's Perfect Page image quality algorithm. In contrast, Canon's imageFORMULA DR 9080C image processing has some limitations, including inadequate border removal, and ineffective image rotation with color documents. Kodak's Perfect Page feature provides an array of capabilities including:
  - Deskew
  - Cropping
  - Color dropout
  - Dynamic thresholding (iThresholding)
  - Contrast control
  - Blank page detection
  - Auto Orientation / Auto Rotation (AO/AR)

- Canon's 600 dpi resolution scanning capability is available in limited scenarios. For example, the product cannot scan large documents (more than 17 inches), color documents, or two-sided documents at 600 dpi.
- *Kodak* i780 Scanner technology for multifeed detection (with ultrasonic technology) can handle mixed batch documents, and runs at rated speed at 200 and 300 dpi. Whereas, the Canon Scanner speed slows down with several critical features. Specifically, the Canon Scanner will not run at rated speed with auto orientation / auto rotation turned on in color mode, and it has difficulty running mixed document sets.
- The *Kodak* i780 Scanner produces dual stream output at rated speed. With a capture software application that supports multiple streams, dual stream is an advantage as it allows a color image to be leveraged in the validation stage of a typical work flow, then deleted, while the black and white image, a smaller file, can be archived – without an additional document scan required. The Canon Scanner does not offer dual stream scanning.
- *Kodak* Scanners are backed by factory-trained employees providing world-class service and support for all hardware and software.

Kodak i780 Scanner vs. Fujitsu 5900C

- The *Kodak* i780 Scanner is a robust, ergonomically designed scanner, able to handle a production level duty cycle, and performing 8% faster (running at 200 and 300 dpi) than the Fujitsu fi-5900C Scanner. The Fujitsu fi-5900C Scanner design, specifically it's height, makes it difficult to effectively run the machine for periods of 8 hours or more.
- The *Kodak* i780 Scanner offers superb image processing, utilizing Kodak's Perfect Page image quality algorithm. In contrast, the Fujitsu fi-5900C images are dark, noisy and grainy, and the product struggles when handling documents with binder holes. Kodak's Perfect Page technology provides an array of image quality capabilities to effectively manage production level scanning needs, including:
  - Deskew
  - Cropping
  - Color dropout
  - Dynamic thresholding (iThresholding)
  - Contrast control
  - Blank page detection
  - Auto Orientation / Auto Rotation (AO/AR)
- *Kodak* i780 Scanner technology for multifeed detection (with ultrasonic technology) can handle mixed batch documents reliably, and runs at rated speed at 200 and 300 dpi. In contrast, the Fujitsu 5900C Scanner speed is limited to 100 ppm with VRS enabled. Specific image quality features contribute to the Fujitsu scanners throughput decline of 31% one-sided mode and 72% two-sided mode @ 200 dpi, and a reduction of 51% in one-sided mode, and 85% two-sided mode @ 300 dpi, including: blank page detection, deskew, auto cropping, and auto orientation /auto rotation having the greatest impact to Fujitsu's throughput decline. Additionally, the Fujitsu scanner has difficulty managing small documents; specifically, small documents can disappear in the transport.
- The *Kodak* i780 Scanner can scan longer documents (up to 34 inches / 864 mm) at rated speed. The Fujitsu scanner cannot handle longer documents, supporting only documents up to 17 inches / 432 mm.
- *Kodak* Scanners are backed by factory-trained employees providing world-class service and support for all hardware and software.

Kodak i780 Scanner vs. InoTec ScanMAX 422 DC

- *Kodak* i780 Scanner is robust and is ergonomically designed to be able to handle a production level duty cycle. Its list price is 30% less than the InoTec ScanMAX 422 DC Scanner.
- *Kodak* Scanners are backed by factory-trained employees providing world-class service and support for all hardware and software
- *Limited additional detailed insight is available regarding this competitive product at this time. Updates will be published through CI network as information becomes available.*

Kodak i780 Scanner vs. Microform MFS 455

- *Kodak* i780 Scanner is robust and is ergonomically designed to be able to handle a production level duty cycle. Its list price is 39% less than that of the Microform MFS 455 scanner.
- *Kodak* Scanners are backed by factory-trained employees providing world-class service and support for all hardware and software
- *Limited additional detailed insight is available regarding this competitive product at this time. Updates will be published through CI network as information becomes available.*

Kodak i780 Scanner vs. Panasonic KV-S3105C

- *Kodak* i780 Scanner is robust and is ergonomically designed to be able to handle a production level duty cycle.
- The *Kodak* i780 Scanner offers superb image processing, utilizing Kodak's Perfect Page image quality algorithm. The Panasonic offering does not provide a similar capability. Kodak's Perfect Page feature provides an array of image quality capabilities including:
  - Deskew
  - Cropping
  - Color dropout
  - Dynamic thresholding (iThresholding)
  - Contrast control
  - Blank page detection
  - Auto Orientation / Auto Rotation
- *Kodak* i780 Scanner technology for multifeed detection (with ultrasonic technology) can handle mixed batch documents, and will run at rated speed at 200 and 300 dpi. In contrast, the Panasonic KV-S3105C Scanner speed @ 200 dpi demonstrates a 32% reduction in speed for B&W duplex, 44% reduction in speed for duplex color; and @ 300 dpi: B&W: demonstrates a 45% reduction in speed with simplex and a 58% reduction in speed with duplex; and in Color: demonstrates a 55% reduction in speed for simplex, and a 66% reduction in speed for duplex.
- The *Kodak* i780 Scanner can scan longer documents (up to 34 inches / 864 mm) at rated speed. The Panasonic scanner does not offer this capability.
- *Kodak* Scanners are backed by factory-trained employees providing world-class service and support for all hardware and software.

Key Knockouts

Productivity: The most productive forms processing scanner available on the market, the Kodak i780 Scanner meets more of your scanning needs, with speed and reliability.

- The speed of the *Kodak* i780 Scanner will not slow down when key features are enabled. For example, the product provides auto orientation/auto rotation and dual stream output at rated speed, a broad array of critical image quality capabilities including deskew and color dropout, and even manages mixed batch documents, all at rated speed.
- The *Kodak* i780 Scanner can also handle longer documents, up to 34 inches, when many competitors handle only up to 17 inches.

Image Quality: Offering Kodak's renowned ***Perfect Page*** image quality technology.

- Provides scans that are as good as, or better than, the original.
- The *Kodak* i780 Scanner offers the broadest set of image quality capabilities, delivered through the Kodak's Perfect Page technology included with our production level scanner products, providing an array of superb image quality features, including:
  - Deskew
  - Cropping
  - Color dropout
  - Dynamic thresholding (iThresholding)
  - Contrast control
  - Blank page detection
  - Auto Orientation / Auto Rotation (AO/AR)

Plug and Play: Production ready, out of the box!

- Minimal Setup - everything you need is included in the box – no need for additional third party applications or components.
- Reliable Paper Handling - SurePath Paper Handling ensures reliable document scanning with a wider range of documents than offered by competitors' products.
- Included software fully leverages the broad array of features and capabilities of the Kodak i780 Scanner.

CATALOG NUMBERS

Scanners	CAT No.
Kodak i780 Scanner	120 0013
Consumables	
Kodak Feed Consumables Kit for i600/i700/i1800 Series Scanners	108 4755
Kodak Feeder Kit for Ultra-Lightweight Paper for i600/i700/i1800 Series Scanners	896 5279
Kodak Extra-Large Feeder Consumables Kit for i600/i700/i1800 Series Scanners	842 6157
Kodak Extra-Extra-Large Feeder Consumables Kit for i600/i700/i1800 Series Scanners	134 3680
Kodak Imaging Guide Set for i600/i700/i1800 Series Scanners	197 6703
Kodak Printer Ink Blotters, Front Side for i600/i700 Series Scanners	840 5425
Kodak Enhanced Printer Ink Cartridge Carrier	113 3842
Enhanced Printer Black Ink Cartridge (qty 3)	818 3386
Enhanced Printer Red Ink Cartridge (qty 3)	159 6832
Kodak Digital Science Transport Cleaning Sheets (50)	169 0783
Kodak Digital Science Roller Cleaning Pads (24)	853 5981
Staticide Wipes for *Kodak* Scanners (144)	896 5519
Kodak Calibration Targets (5)	127 1436

Service Care Kits	CAT #
Kodak i780 Equipment Maintenance Agreement - 1year	*Check Local*
Kodak Care Kit i780 – 1year Post Warranty	*Check Local*
Kodak Care Kit i780 – 1 year Extended Warranty	*Check Local*
Kodak Care Kit i780 – 2 year Extended Warranty	*Check Local*
Kodak Care Kit i780 – 2 year Extended Warranty	*Check Local*

FREQUENTLY ASKED QUESTIONS

What customer-installable options are available?

The following accessories can be installed:

- The ***Kodak*** **Feeder Kit for Ultra-Lightweight Paper** allows you to feed lightweight paper from a paper weight range of 25 g/m^2 to 75 g/m^2 kg (7 to 20 lbs). This accessory includes a feed module and separation roller that are specially designed to feed lightweight paper through the scanner transport.
- The ***Kodak*** **White Background Accessory.** If you are scanning translucent documents, this accessory will reduce black background bleed-through while scanning which produces whiter images. The White Background Accessory comes with two white background strips that easily replace the two black background strips in the scanner.
- The ***Kodak*** **Manual Feeder.** The *Kodak* Manual Feeder is available for manual feeding of documents. This feeder provides a flat surface for easy feeding.

Will the i780 Scanner work with VRS?

No. Kofax applications can be supported through AIPE using the ISIS driver.

Does the i780 Scanner support JPEG 2000?

No, not at this time.

How many hours will the lamps last?

The long-life xenon lamps were designed to last the life of the scanner. If the lamps need to be replaced, a Kodak Field Engineer will replace them at no extra cost (per the Kodak Service Agreement).

What is the warm-up time for the i780 Scanner when they are in standby with lamps off?

Warm up times are as follows:

- 60 seconds for the lamps to stabilize after the scanner is turned on (from Energy-Star standby mode).
- 5 seconds when recovering from a document jam or multi-feed error where the pod has been opened.
- 90 seconds for calibration.

Scanning is not allowed during these warm-up times.

What are the customer-replaceable consumables, expected life of consumables, and recommended cleaning supplies?

See the "Catalog Numbers" section or refer to the User's Guide or *Supplies and Consumables for Kodak Scanners* (A-61403) for information about consumables for the i780 Scanner:

- Feeder Consumables Kits (feed modules, separator modules, pre-separation pads, replacement tires)

  NOTE: The nominal tire life is 500,000 documents. The separator module requires two tires and the feed module requires four tires. The Feeder Consumables Kit (CAT. No.108 4755) contains enough tires to scan up to 1,750,000 documents. The Feed Module and Separation Roller are quickly and easily replaceable.

- Printer ink cartridges
- Printer ink blotters
- Transport cleaning sheets
- Staticide Wipes
- Roller cleaning pads
- Calibration targets
- Imaging guides

Can I add Kodak Performance*Plus* to the i700 Scanner?

Service for the i780 Scanner is covered by the Kodak Performance*Plus* program. It will allow customers to upgrade their cover at highly competitive prices. Performance*Plus* is available in selected markets only. Contact your local Kodak sales team for more information.

Does the scanner support zone processing in black and white, color, and grayscale?

Yes.

Why does the output tray have five positions?

Different output tray positions work best for different jobs. Choose the best position to suit your application. For example, long documents (e.g., A3-size) work best with the tray in the full down position. The highest position works best with shorter documents.

When should I use the gap release lever?

Use the gap release any time thick or fragile documents will be fed one at a time through the scanner. Refer to the User's Guide for more information.

What is the IEEE-1394 (FireWire) Connection Standard?

FireWire is a high-speed serial input/output (I/O) technology for connecting peripherals, such as scanners, to a computer. FireWire was originally developed by Apple Computer, Inc., and is now an industry standard (IEEE-1394).

FireWire is one of the fastest peripheral standards developed. It has primarily been used with multimedia peripherals such as digital video camcorders, professional digital cameras, printers, and other high-speed devices.

FireWire is over 30 times faster than USB 1.1 standard. While USB 2.0 tops out at 480 Mbps, the IEEE-1394 (FireWire) standard allows for programmed increases in bandwidth over time. The standard is currently moving from 400 Mbps to 800 Mbps, however, products at this speed are not yet available.

Why does Kodak use FireWire in the i780 Scanner?

Kodak has placed FireWire in the i780 Scanner because it is a plug-and-play PC interface standard and because it is one of the fastest peripheral standards ever developed, and to allow for maximum speed and efficiency for the transfer of data-intensive materials.

What operating systems does IEEE-1394 work with?

The IEEE-1394 standard works with Windows 98 (Second Edition), Windows ME, Windows 2000, Windows XP, and all Macintosh systems.

What operating systems do not support IEEE-1394?

IEEE-1394 is not compatible with Windows 3.1, Windows 95, Windows NT, and Windows 98 (First Edition).

What does an IEEE-1394 connection cost?

The IEEE-1394 (FireWire) card and cable are bundled with the *Kodak* i780 Scanner; therefore, there is no additional cost to the customer.

What host adapter does Kodak ship with the scanner?

Koutech 1582T.

Do I need to purchase a FireWire card and cable?

No. Kodak supplies both a FireWire card and cable in the box with the scanner (see the “What’s in the Box” section).

Why would someone buy FireWire?

It is a proven, reliable standard for data-intensive, high-speed transmission and it is one of the fastest peripheral standards ever developed, at a price that’s affordable to consumers. Other high-speed serial I/O technologies have yet to become readily available.

How does IEEE-1394 compare with other serial I/O interfaces such as USB and SCSI?

	IEEE-1394 (FireWire)	SCSI-I	SCSI-II	SCSI-III	USB 1.1	USB 2.0
Speed	400 Mbps (50 Mbps) (Practical: 25)	5 Mbps (Practical: 2.5)	10 Mbps (Practical: 5)	80 Mbps (Practical: 20)	12 Mbps (1.5 Mbps)	480 Mbps (60 Mbps) (Practical: unknown)
Kodak Scanner Compatibility	i200/i700 Scanners *Kodak* Professional Digital Cameras	55XX/75XX/95XX	i50/i60 1500/2500 35XX/4500 7520/9520	i800 Series Scanners		
Approximate Cost	Standard on most PCs. $50 USD adapter board also available	$200 USD for adapter board	$200 USD for adapter board	$300 USD for adapter board	Standard on most PCs.	$70 USD adapter card
Standard	Yes	Yes	Yes	Yes	Yes	Yes
Ubiquity	Standard on many PCs; many board markers	Only available on PCs as an added board; limited board makers	Only available on PCs as an added board; limited board makers	Only available on PCs as an added board; limited board makers	Standard on most PCs	Standard on most PCs
Cable Length	5 meters (connect more by adding hubs/repeaters)	6 meters	3 meters	12 meters	5 meters (connect more by adding hubs)	5 meters (connect more by adding hubs)
Approximate Cable Cost	$8 USD	$40 USD	$40 USD	$40 USD	$8 USD	$18 USD
Hot-Pluggable	Yes	No	No	No	Yes	Yes
Operating System Support	Windows 98SE Windows ME Windows 2000 Windows XP Vista	All	All	All	All	Windows 2000 Windows XP Does not support Windows 98 or Windows ME, Vista
Plug and Play	Yes	No	No	No	Yes	Yes

Product Comparison – *Kodak* i780 Scanner with the Competition

Features		*Kodak* i780 Scanner	*Kodak* i660 Scanner	*Kodak* i1840 Scanner	Böwe Bell & Howell Spectrum XF: 8120DC XF 8140DCI	Canon imageFORMULA DR 9080C	Fujitsu fi-5900C	InoTec ScaMax 422 CD (M06)	Microform MF S 455	Panasonic KV-S3105C
Image processing		Yes – Perfect Page features include: deskew, cropping, color dropout, dynamic thresholding (iThresholding), contrast control, blank page detection, automatic orientation	Yes – Perfect Page features include: deskew, cropping, color dropout, dynamic thresholding (iThresholding), contrast control, blank page detection	Yes – Perfect Page features include: deskew, cropping, color dropout, dynamic thresholding (iThresholding), contrast control, blank page detection, automatic orientation, image addressing	Yes	Yes	Yes	Yes	Yes	Yes
Multi-Feed Detection		3D Ultrasonic	3D Ultrasonic	3D Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic	Ultrasonic
Paper Size	Maximum scan size	12 x 34 in. 305 x 864 mm	12 x 34 in. 305 x 864 mm	12 x 34 in. 305 x 864 mm	11.7 x 40 in. 297 x 10163 mm	12 x 39.4 in. 305 x 1000 mm	12 x 17 in. 305 x 432 mm	11.7 x 163 in. 297 x 4128 mm	12.5 x 157 in. 315 x 4000 mm	11.7 x 17 in. 297 x 432 cm
	Minimum scan size	2.5 x 2.5 in. 64 x 64 mm	2.5 x 2.5 in. 64 x 64 mm	2.5 x 2.5 in. 64 x 64 mm	2.6 x 2.6 in. 66 x 66 mm	2.2 x 2.8 in. 56 x 71 mm	2.1 x 2.9in. 53 x 74 mm	1.1 x 2.4 in. 28 x 60 mm	1.9 x 2.75 in. 50 x 70 mm	1.9 x 2.75 in. 50 x 70 mm
Dual-stream: Color and B/W or Gray and B/W images		Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Auto Color Detection		Yes	Yes	Yes	Yes	No	Yes	Yes	Yes – optional	Yes
Scanning Speed	B&W: Simplex/Duplex @ 200 dpi A4*	130 ppm/260 ipm	120 ppm/240 ipm	160 ppm/320 ipm	XF 8120: 120 ppm/240 ipm+ XF 8140: 140 ppm/280 ipm+	90 ppm/180 ipm**+	120 ppm/240 ipm+ VRS is: 100 ppm /200 ipm	150 ppm/300 ipm	120 ppm/240 ipm	132 ppm/230 ipm+
	B&W Simplex/Duplex @ 300 dpi A4*	130 ppm/260 ipm	80 ppm/160 ipm	107 ppm/214 ipm	N/A	N/A	120 ppm/240 ipm+ VRS is: 100 ppm /200 ipm	N/A	N/A	N/A
	Color Simplex/Duplex @ 200 dpi A4*	130 ppm/260 ipm	120 ppm/240 ipm	160 ppm/320 ipm	8120: 90 ppm/180 ipm+ 8140: 140 ppm/230 ipm+	54 ppm/92 ipm**+	120 ppm/240 ipm+ VRS is: 100 ppm /200 ipm	150 ppm/300 ipm	120 ppm/240 ipm	132 ppm/180 ipm+
	Color Simplex/Duplex @ 300 dpi A4*	130 ppm/260 ipm	80 ppm/160 ipm	107 ppm/214 ipm	N/A	N/A	120 ppm/240 ipm+ VRS is: 100 ppm /200 ipm	N/A	N/A	N/A
Feeder capacity		500 sheets	500 sheets	500 sheets	500 sheets	500 sheets	500 sheets	500 sheets	500 sheets	1000 sheets
Recommended daily volume		130,000 sheets	120,000 sheets	Unlimited	60,000 sheets	10,000 sheets	100,000 sheets	Unlimited	30,000 sheets	Unlimited
Optical resolution		300 dpi	300 dpi	300 dpi	600 dpi	600 0dpi	600 dpi	400 dpi	400 dpi	600 dpi
Software Support		Kodak Capture Software	Kodak Capture Software, Kofax VRS	Kodak Capture Software	Kofax VRS 4.1	Capture Perfect 3.0	ScandAll 21 Kofax VRS 4.1	MDIT	MDIT J&K DpuScan	RTIV/PIE
Interface		IEEE-1394 (FireWire)	IEEE-1394 (FireWire)	IEEE-1394 (FireWire)	SCSI-3	SCSI-3, USB 2.0	SCSI -3, USB 2.0	Ethernet	SCSI-3	SCSI-3, USB 2.0
Drivers		TWAIN and ISIS (included)	TWAIN and ISIS (included)	TWAIN and ISIS (included)	TWAIN and ISIS	TWAIN and ISIS	TWAIN and ISIS	TWAIN and ISIS	TWAIN and ISIS	TWAIN and ISIS
Warranty		3 months on-site	3 months on-site	3 months on-site	1 year on-site	3 months on-site – next business day	3 months on-site – next business day	1 year RTB (Australia)	N/A	6 months on-site, next business day

* Landscape Speed
** Portrait Speed
+Letter

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